

PERSONAL DATA ASSISTANT WITH REMOTE CONTROL CAPABILITIES

BACKGROUND OF THE INVENTION

1. The Field of the Invention

The present invention relates to personal data assistants (PDAs) and, more specifically, PDAs or adapters therefor capable of operating remote-controllable devices.

2. Present State of the Art

In our rapidly advancing electronic era, consumers are obtaining increasing numbers of remote-controllable devices such as stereos, televisions, and VCRs. Each of these separate devices comes with its own remote control. Unfortunately, remote controls are often difficult to operate and are frequently lost. These problems are compounded by the fact that consumers must locate and learn to operate a number of remote controls that usually have different configurations and operating instructions.

Another electronic apparatus that is increasing in popularity is the personal data assistant (hereinafter "PDA"). PDAs are small, substantially hand-sized computers that are used for storing, manipulating, and retrieving a defined amount of data. One example of a PDA is the PalmPilot® manufactured by 3Com. The PalmPilot® functions primarily as an electronic day planner and address recorder. Although PDAs are useful, they provide another electronic device that the consumer must learn to master.

OBJECTS AND BRIEF SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide PDAs and/or adapters for PDAs that can operate remote-controllable devices.

Another object of the present invention is to provide PDAs and/or adapters for PDAs that can operate a plurality of remote-controllable devices.

Finally, it is an object of the present invention to provide PDAs and/or adapters for PDAs that can consolidate or limit the number of remote controls to operate a variety of different remote-controllable devices.

To achieve the foregoing objectives, and in accordance with the invention as embodied and broadly described herein, an adapter for a PDA is provided. The adapter has a substantially L-shaped housing that can be physically and electrically coupled with a conventional PDA. Disposed within the housing of the adapter is a micro processor and a light source which are energized by enclosed batteries. In one embodiment, the light source is a laser. In another embodiment, the light source is a light emitting diode.

The light source emits a light beam which can be converted into a digital signal. This can be accomplished by using a switch which turns the light source on and off. Alternatively, a liquid crystal display (LCD) can be positioned in front of the light source which can then be selectively turned on and off to block the light beam.

When it is desired to download the data stored on the PDA, the micro processor in the adapter transmits a corresponding series of digital pulses using the light source. These pulses are received by a photo detector of a host computer. The photo detector is coupled with a processor which receives, processes, and stores the data stream. The adapter can thus be used to download information from the PDA to a host computer without effecting a physical electrical connection therebetween.

The adapter can also be used to operate remote-controllable devices such as stereos, televisions, and VCRs.

By loading appropriate software in the PDA or adapter, the light source can be operated by the microprocessor to emit low speed pulses to a remote-controllable device for remotely controlling the device. For example, by accessing software on the PDA for a television, depressing a select control button on either the PDA or the adapter generates a low speed pulse that turns the television on or off. Of course other functions such as volume or channels can also be selectively changed. Likewise, by selecting other programs loaded on the PDA, a single PDA can be used to remotely operate a variety of different remote-controllable devices.

Accordingly, by using a single PDA, a variety of different remote-controllable device can be operated. As a result, the consumer does not need to purchase separate remote control devices and need only learn how to operate a single device in order to know how to operate a variety of different remote-controllable devices.

In other embodiment, the electronics of the adapter can be integrally formed within the PDA so that it performs the above functions. In this embodiment, the separate adapter is not required.

These and other objects, features, and advantages of the present invention will become more fully apparent from the following description and appended claims, or may be learned by the practice of the invention as set forth herein-after.

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the manner in which the above-recited and other advantages and objects of the invention are obtained, a more particular description of the invention briefly described above will be rendered by reference to specific embodiments thereof which are illustrated in the appended drawings. Understanding that these drawings depict only typical embodiments of the invention and are not therefore to be considered to be limiting of its scope, the invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

FIG. 1 is a front perspective view of a PDA separated from an adapter;

FIG. 2 is a block diagram of the components of the adapter shown in FIG. 1 and components of a computer;

FIG. 3 is a block diagram of the adapter shown in FIG. 1 interacting with a bar code;

FIG. 4 is a block diagram of the adapter shown in FIG. 1 interacting with a remote-controllable device; and

FIG. 5 is a perspective view of a PDA incorporating the electronics of the adapter shown in the FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Depicted in FIG. 1 is one embodiment of an inventive adapter 10 for use with a conventional PDA 12. PDAs come in a variety of makes, styles, and configurations. In one embodiment of the present invention, PDA 12 includes a PalmPilot® made by 3Com. PDA 12 includes a low profile box shaped housing 9 having a front face 14 extending from a top end 16 to a bottom end 18. Mounted on front face 14 is a display screen 19. Positioned at bottom end 18 are control buttons 22. Disposed within housing 9 is a micro processor 11 coupled with memory 13 such as RAM, and batteries 15 for powering the system. The microprocessor interacts with an operating system that runs selective software depending on the intended use of PDA 12. In one